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Getting Started with the Contivity 600

NORTEL
NETWORKS™

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Preface

This guide takes you through the necessary tasks to get your Nortel Networks™ Contivity 600™ up and running. Topics include:

- Introducing the Contivity
- Opening the Contivity
- Accessing the PCI inserts
- Changing PCI cards

Complete details for configuring and monitoring the Switch are in *Managing the Contivity Switch*.

Conventions

This guide refers to the Contivity as the Contivity 600, the 600, the Switch, or the Contivity. It assumes that you are familiar with Web browsers and their general operation.

Documentation

This document uses the following conventions to distinguish among notes of varying importance.



Note: *Take notice.* Notes contain helpful suggestions or references to materials contained in this document.



Caution: *Be careful.* In this situation, you might do something that could result in damage to the equipment or loss of data.



Warning: *Danger.* You are in a situation that could cause bodily injury. Before working on equipment, beware of the hazards involved with electrical circuitry and standard practices for preventing accidents, such as disconnecting equipment from its power source.

Related publications

The following list shows the associated documentation that you will need to configure and manage the Switch and describes the document's objectives.

- *Release Notes* provide the latest information, including known problems, workarounds, and special considerations.
- *Managing the Contivity Extranet Switch* (included on the CD) provides complete details to configure, monitor, and troubleshoot the Switch.

Text

This guide uses the following text conventions:

angle brackets (< >)	Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command. Example: If the command syntax is <code>ping <ip_address></code> , you enter <code>ping 192.32.10.12</code>
bold Courier text	Indicates command names, options, and text that you need to enter. Example: Use the dinfo command. Example: Enter show ip {alerts routes} .
<i>italic text</i>	Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore. Example: If the command syntax is <code>show at <valid_route></code> , <i>valid_route</i> is one variable and you substitute one value for it.
plain Courier text	Indicates command syntax and system output, for example, prompts and system messages. Example: Set Trap Monitor Filters
separator (->)	Shows menu paths. Example: Protocols -> IP identifies the IP option on the Protocols menu.

Acronyms

This guide uses the following acronyms:

AUI	attachment unit interface
BootP	Bootstrap Protocol
BRI	basic rate interface

CSMA/CD	carrier sense multiple access/collision detection
DLCMI	Data Link Control Management Interface
HDLC	High-level Data Link Control
IP	Internet Protocol
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization
ITU-T	International Telecommunication Union-Telecommunication Standardization Sector (formerly CCITT)
MAU	media access unit
MDI-X	medium dependent interface crossover
NBMA	nonbroadcast multi-access
OSPF	Open Shortest Path First
PPP	Point-to-Point Protocol
SMDS	Switched Multimegabit Data Service
SNMP	Simple Network Management Protocol
STP	shielded twisted pair
TPE	twisted pair Ethernet

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User interface help button

Click the Help button that is located in the upper right corner of displays to learn about fields on a given page. Where appropriate, the information provides cause and effect of an action; otherwise, it might offer troubleshooting information.

How to get help

If you purchased a service contract for your Nortel Networks product from a distributor or authorized reseller, contact the technical support staff for that distributor or reseller for assistance.

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Technical Solutions Center	Telephone
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North America	(800) 2LANWAN or (800) 252-6926
Asia Pacific	(61) (2) 9927-8800
China	(800) 810-5000

An Express Routing Code (ERC) is available for many Nortel Networks products and services. When you use an ERC, your call is routed to a technical support person who specializes in supporting that product or service. To locate an ERC for your product or service, go to the www12.nortelnetworks.com/ URL and click ERC at the bottom of the page.

Chapter 1

Introducing the Contivity 600

The Nortel Networks Contivity 600 provides scalable, secure, manageable extranet access for up to 30 simultaneous users across the Public Data Network (PDN).

The Contivity's features include the most popular tunneling protocols: IP Security (IPsec), Point-to-Point Tunneling Protocol (PPTP), Layer 2 Forwarding Tunneling Protocol (L2TP), and Layer 2 Forwarding (L2F). IPsec uses digital certificates, password-based keys, and tokens for authentication; PPTP, L2TP, and L2F use Challenge Handshake Authentication Protocol (CHAP) or Password Authentication Protocol (PAP) for authentication. The PPTP and L2TP implementations for the Contivity support MS-CHAP authentication with 56- to 128-bit key encryption.

The Contivity provides more security than traditional remote access schemes due to the combination of authorization, authentication, privacy, and access control on a per user basis. Additionally, the IPsec protocol and related Internet Security Association and Contivity Key Management Protocol (ISACKMP) and Oakley key establishment protocol support further enhance the security offering.

For authentication and access control, the Contivity supports an internal or external Lightweight Directory Access Protocol (LDAP) server, and external Remote Authentication Dial-In User Service (RADIUS) servers. To restrict access, the Contivity uses packet filtering based on Protocol ID, Direction, Source and Destination IP addresses, Source and Destination Ports, and TCP connection establishment.

The unique quality of service (QoS) mechanisms include call admission and packet forwarding priorities, and support for Resource ReSerVation Protocol (RSVP).

Figure 1 shows the front view of the Contivity 600.

Figure 1 Front view of the Contivity 600



The HTML and Java Web management interface allows different Contivity administrators to have different access rights, including configuration, status, and monitoring. The Contivity offers RADIUS accounting support and extensive logging, including events, system, configuration, and security logs. Table 1 lists all of the components and accessories of the Contivity 600. If for any reason you have not received all of the materials listed, contact Nortel Networks Customer Service.

Table 1 Components and accessories of a Contivity 600

Description	Quantity
Contivity 600	1
Power cord (ordered separately)	
Molded serial cable DB9/DB25-to-DB9/DB25	1
Contivity CD	1
IP Address Configuration Utility diskette	1
<i>Getting Started with the Contivity 600</i> (this book)	1
<i>Release Notes</i>	1
AC to DC external power supply	1

Chapter 2

Cabling and LEDS

This chapter provides the following information:

- Connecting power
- LAN/WAN connections to:
 - 10/100BASE-TX LAN interface
 - Single V.35 interface
 - Single X.21 interface
 - T1 CSU/DSU interface
- Serial interface connection
- Understanding the LEDs



Caution: Cabling for all WAN, LAN, and serial connections are not to be routed outside the building environment.

Connecting the cables

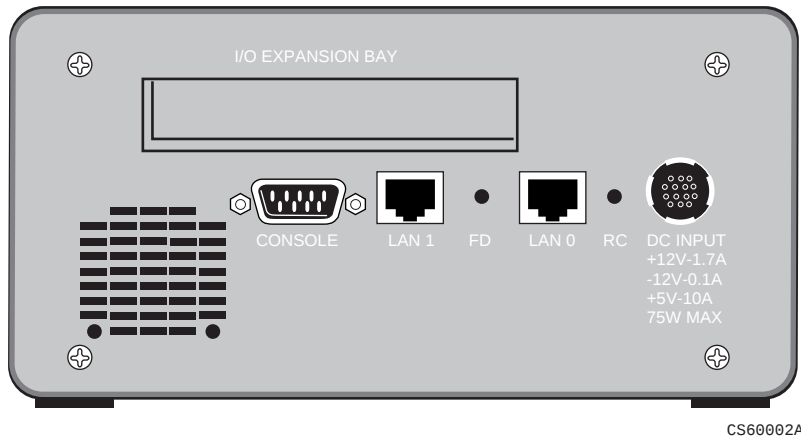
Use the following procedure to connect the Contivity's cables.



Warning: Connect the LAN/WAN, serial port, and DC power cables before connecting the AC cord to the power supply and to an AC power source.

- 1 Connect the 10/100BASE-TX LAN RJ-45 connector to the Contivity and all other LAN/WAN connections. Figure 2 shows the back of the Contivity.

Figure 2 Back view of the Contivity 600



Power cord requirements



Note: LAN 0, LAN 1, and the FD and RC access openings are described later in this section.



Warning: Do not modify or use the AC power cord if it is not the exact type that is required for your power outlet.



Caution: You should protect your Switch by plugging it into a surge suppressor.

Current rating

The power cord must be rated for the available AC voltage, and must have a current rating that is at least 125 percent of the Contivity's current rating (refer to Appendix A).

Wall outlet connector

The power cord must terminate in a male plug with appropriate grounding. The power cord must have certification marks from an acceptable regional agency.

Power supply connector

The connector that you plug into the Contivity power supply AC receptacle must be an IEC 320, Sheet C13 female.

Cord length and flexibility

The power cord must be less than 4.5 meters (14.7 feet) long, and it must be a flexible HAR (harmonized) cord or VDE-certified cordage to comply with the Contivity's safety certifications.

LAN interface connections

The Contivity has two LANs built in. LAN0 is the Private LAN and is also the LAN to use for Web management. LAN1 defaults to a Public LAN. The Contivity software refers to the LAN1 port as Slot 1, interface 1.

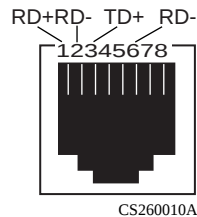
At least one LAN interface connection is for Web management.

100BASE-TX connections require Category 5, twisted-pair wire. The 100BASE-TX specification supports 100 Mb/s transmission over two pairs of Category 5 twisted-pair Ethernet wiring; one pair each for transmit and receive operations.

The maximum recommended cable segment length is 100 meters between a 100BASE-TX repeater and a workstation (due to signal timing requirements). This wiring scheme complies with the EIA 568 wiring standard.

Figure 3 shows the Contivity connector's 10/100BASE-TX pinouts.

Figure 3 10/100BASE-TX pinouts



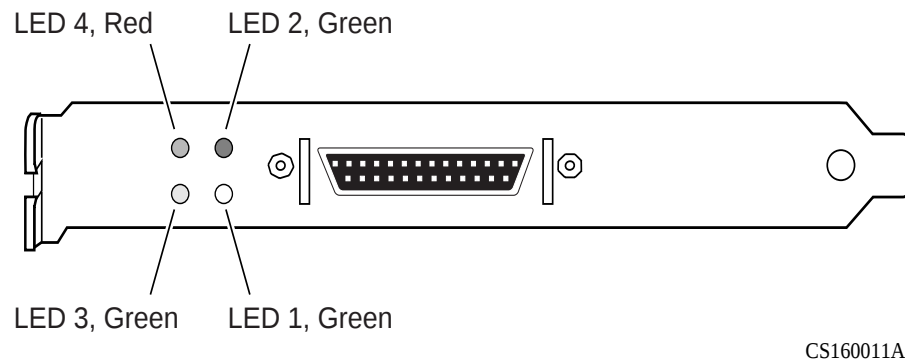
10BASE-T connections can use Category 3, 4, or 5 twisted-pair wiring. The LAN connectors on the rear of the Contivity are RJ-45 straight through.

Single WAN interface V.35 or X.21 (optional)

The V.35/X.21 WAN connector is located on a PCI card that offers a separate DB28S connector that provides the signals needed to interface to V.35/X.21 equipment. Included in the accessory box is a cable that must be ordered separately; one that maps the signals to a standard V.35 connector, or one that maps the signals to an X.21 connector. You will need a DSU/CSU (digital service unit/channel service unit) between the WAN connection and the Contivity. This section documents the connector and cables used with the V.35 and/or those used with X.21 WAN Synchronous Adapters.

The cables provided with the WAN PCI card enable the WAN adapter to function as DTE (Data Terminal Equipment). Figure 4 shows the single V.35/X.21 WAN interface.

Figure 4 Single V.35/X.21 WAN interface



Single V.35 WAN interface

Table 2 shows the DB28S-to-V.35 cable pinouts.

Table 2 DB28S-to-V.35 cable pinouts

Standard-wired end 28-pin male	Signal name	Pair # & conductor	Special-wired end 34-pin male	Notes
2	TXDA	pair 1A	P	
14	TXDB	pair 1B	S	
3	RXDA	pair 2A	R	
16	RXDB	pair 2B	T	
15	TXCA	pair 3A	Y	
12	TXCB	pair 3B	AA	
17	RXCB	pair 4A	V	
9	RXCB	pair 4B	X	
24	SCTEA	pair 5A	U	
11	SCTEB	pair 5B	W	
4	RTSA	pair 6A	C	
19	RTSB	pair 6B	no conn	Note 2
5	CTSA	pair 7A	D	
13	CTSB	pair 7B	no conn	Note 2
6	DSRA	pair 8A	E	
22	DSRB	pair 8B	J	
20	DTRB	pair 9A	H	
23	DTRB	pair 9B	no conn	Note 2
8	DCDA	pair 10A	F	
10	DCDB	pair 10B	no conn	Note 2
18	LL	pair 11A	L	
21	RL	pair 11B	N	
25	TM	pair 12A	NN	
26	M0<-SIGNAL GROUND	pair 12B	B	Note 3
27	M1<-SIGNAL GROUND	pair 13A	B	Note 3
28	M2	pair 13B	no conn	Note 2
1	SHIELD	pair 14A	A	Note 1
7	SIGNAL GROUND	pair 14B	B	Note 3

The following notes apply to the Single V.35 DTE cable:

1. At each end, the cable shield and connector shell must connect respectively to pin A of the 34-pin connector and pin 1 of the standard 28-pin connector.
2. The term "no conn" means the wire is not connected to a pin in the 34-pin connector.
3. Wires 12B, 13A, and 14B connect to pin B in the 34-pin connector.
4. Unused pins in the 34-pin connector need not be present.
5. Do not connect Shield to Signal Ground as these are separate signals.
6. The pair suffix A or B refers to an individual wire within a twisted pair.

Table 3 shows the DB28S-to-X.21 cable pinouts.

Table 3 DB28S-to-X.21 cable pinouts

Standard-wired end 28-pin male	Signal name	Pair ## & conductor	Special-wired end 37-pin male	Notes
2	TXDA	pair 1A	2	
14	TXDB	pair 1B	9	
3	RXDA	pair 2A	4	
16	RXDB	pair 2B	11	
15	TXCA	pair 3A	6	
12	TXCB	pair 3B	13	
17	RXCB	pair 4A	pair 5a	Note 5
9	RXCB	pair 4B	pair5b	Note 5
24	SCTEA	pair 5A	pair4a	Note 5
11	SCTEB	pair 5B	pair4b	Note 5
4	RTSA	pair 6A	3	
19	RTSB	pair 6B	10	
5	CTSA	pair 7A	12	
13	CTSB	pair 7B	no conn	
6	DSRA	pair 8A	no conn	Note 2
22	DSRB	pair 8B	no conn	Note 2
20	DTRB	pair 9A	no conn	Note 2
23	DTRB	pair 9B	no conn	Note 2
8	DCDA	pair 10A	no conn	Note 2
10	DCDB	pair 10B	no conn	Note 2
18	LL	pair 11A	no conn	Note 2
21	RL	pair 11B	no conn	Note 2
25	TM	pair 12A	no conn	Note 2
26	M0	pair 12B	no conn	Note 2
27	M1	pair 13A	no conn	Note 2
28	M2<-SIGNAL GROUND	pair 13B	8	Note 3
1	SHIELD	pair 14A	1	Note 1
7	SIGNAL GROUND	pair 14B	8	Note 3

The following notes apply to the Single X.21 DTE cable:

1. At each end, cable shield and back shell must connect to pin 1 of connector.
2. "no conn" means the wire is not connected to a pin in the 15-pin connector.
3. Wires 13B and 14B connect to pin 8 in the 15-pin connector.
4. Unused pins in the 15-pin connector need not be present.
5. Wires of pair 4 connect to wires of pair 5, but not to any pins in the DA-15. Do NOT interconnect Shield to Signal Ground – they are separate signals.
6. The pair suffix A or B refers to an individual wire within a twisted pair.

T1 CSU/DSU WAN interface



Note: The T1 CSU/DSU WAN interface cable is not supplied by Nortel Networks.

This cable has 8-pin male connectors on each end. The T1 CSU/DSU WAN crossover cable crosses the blue wire pair with the orange wire pair. This is different from the commonly available crossover cable used for 10BaseT, which crosses the green wire pair with the orange wire pair. Figure 5 shows the T1 CSU/DSU interface.

Figure 5 T1 CSU/DSU interface

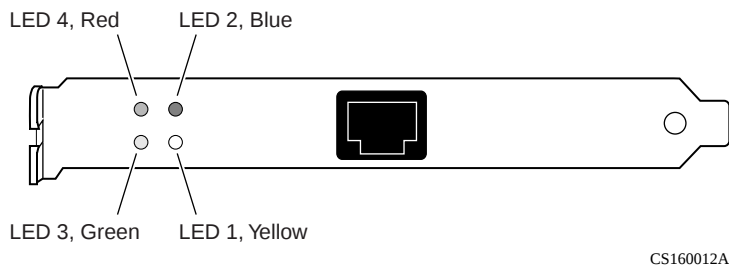


Table 4 shows the T1 CSU/DSU cable pinouts.

Table 4 T1 CSU/DSU cable pinouts

Standard-wired end 28-pin male	Signal name	Pair # & conductor	Special-wired end 8-pin male	Notes
1	RXDA->TXDA	wht/org pair 2A	5	
2	RXDB>TXDA	orange pair 2B	4	
3	not used	wht/grn pair 3A	3	
4	TXDB<-RXDB	blue pair 2B	2	
6	TXDA<-RXDA	wht/blu pair 1A	1	
7	not used	green pair 3B	6	
8	not used	wht/brn pair 4A	7	
9	not used	brown pair 4B	8	

The cable will operate properly if pins 3, 6, 7, and 8 are not connected.



Warning: Do not use Ethernet cable. The T1 CSU/DSU will appear to work, but will not work to specifications. Data may be corrupted.

Serial interface cable

Nortel Networks ships a serial cable with the Contivity to enable configuration of the Management IP address, subnet mask, default gateway address, and other configurable parameters. Nortel Networks recommends that you use the IP Address Configuration Utility diskette for easy initial IP address configuration. Later, you can use the serial interface configuration menu to perform management functions.



Note: For information on serial interface connection, refer to *Managing the Contivity Extranet Switch*, Chapter 2, “Getting Started.”

The serial cable provided with the Contivity is a DB9/DB25-to-DB9/DB25. This provides a crossover (transmit-to-receive and receive-to-transmit). The DB9 connector goes into the Contivity and the other DB9 or DB25 connector goes into your workstation. Table 5 shows the multiple cable DB9/DB25 serial interface cable pinouts.

Table 5 Multiple DB9 and DB25 connector pinouts

Serial Port DB9 Connector		Serial Port DB25 Connector			Serial Port DB25 Connector		Serial Port DB9 Connector	
Pinout	Signal	Pinout	Signal		Pinout	Signal	Pinout	Signal
2	RXD	3	TXD	>	2	RXD	3	TXD
3	TXD	2	RXD	>	3	TXD	2	RXD
4	DTR	20	DSR	>	6	DTR	6	DSR
5	Ground	7	Ground	>	7	Ground	5	Ground
6	DSR	6	DTR	>	20	DSR	4	DTR
7	RTS	4	RTS	>	5	CTS	8	CTS
8	CTS	5	CTS	>	4	RTS	7	RTS

Understanding the LEDS

Front panel LEDS

The front panel, shown in Figure 6, has five lighted LEDS that indicate the status of the Contivity.

Figure 6 Front panel LEDS



- The **Power LED** is green when DC power is supplied to the unit.
- The **Alert LED** is set to red by the Contivity software to indicate an serious condition. This LED indicates the Health Check status that is described in Health Check reports. Refer to *Managing the Contivity Extranet Switch* for information on Health Check.
- The **Attention LED** is yellow to indicate a software attention condition. Refer to *Managing the Contivity Extranet Switch* for information on Health Check.
- The **Ready LED** is green to indicate that the box has reached a state of readiness.
- The **Boot LED** is yellow after power is applied. Yellow indicates a boot in process/non-ready state. When both the Boot and the Ready LED are lit at the same time, this indicates that the unit has entered recovery mode.

LAN LEDs

Figure 7 shows the LAN0 and LAN1 port LEDs located on the back of the Contivity Table 6 shows the corresponding LEDs.

Figure 7 LAN Port LEDs



Table 6 LAN port LED indicators

LED	Indicator	Description
Yellow	On	The cable connections between the LAN port and the hub are good.
	Off	The cable connections between the LAN port and the hub are faulty.
	Flashing	The LAN port is sending or receiving network data. The frequency of the flashes increases with increased traffic.
Green	On	The LAN port is operating at 100 Mb/s.
	Off	The LAN port is operating at 10 Mb/s.

Start the Contivity and confirm that the LAN interfaces are cabled properly by examining LEDs located on the rear panel of the Contivity.

V.35/X.21 single LEDs

Figure 8 shows the Single V.35/X.21 LEDs. Look at the condition of the LEDs located on the LMC 1000 Single V.35 WAN PCI interface card.

Table 7 shows the corresponding LEDs.

Figure 8 Single V.35/X.21 LEDs

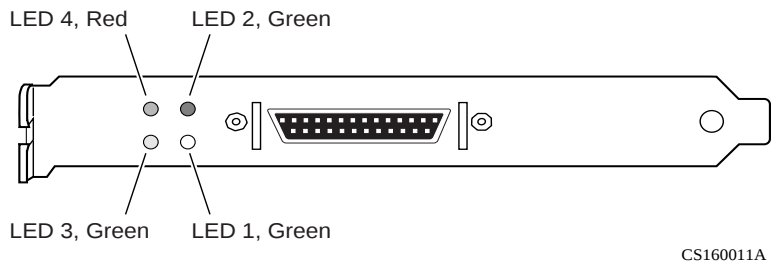


Table 7 Single V.35/X.21 LED indicators

LED	Description
LED1, Green	Power is on to the adapter and the onboard microcode is loaded.
LED2, Green	The signals CDC and DSR are on between the DSU and the adapter. LED2 detects receive link status.
LED3, Green	Cable is detected.
LED4, Red	No external transmit clock source is available.

T1 CSU/DSU LEDs

Figure 9 shows the T1 CSU/DSU LEDs. Look at the condition of the LEDs located on the T1 Integrated CSU/DSU PCI interface card. Table 8 shows the corresponding LEDs.

Figure 9 T1 CSU/DSU LEDs

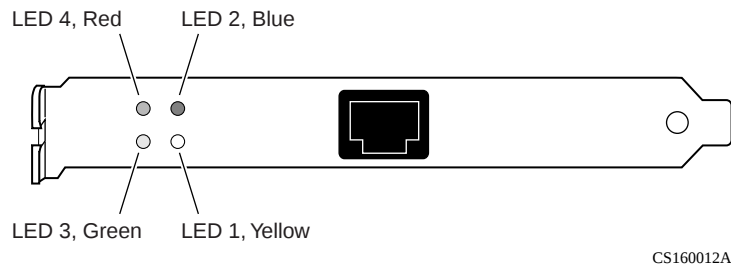


Table 8 T1 CSU/DSU LED indicators

LED	Description
LED1, Yellow	Yellow alarm LED is lit when the far-end equipment is in the red alarm condition.
LED2, Blue	Blue alarm LED is lit when receiving an upstream failure denoted by an alarm indication signal (AIS).
LED3, Green	Normal operation.
LED4, Red	Red alarm is lit when a loss-of-signal (LOS) or out-of-frame (OOF) condition is detected on the receive signal.

Public LAN LEDS

Figure 10 shows the PCI card 10/100BASE-TX public LAN LEDs. Look at the condition of the LEDs. Table 9 shows the corresponding LEDs.

Figure 10 10/100BASE-TX LAN LEDs

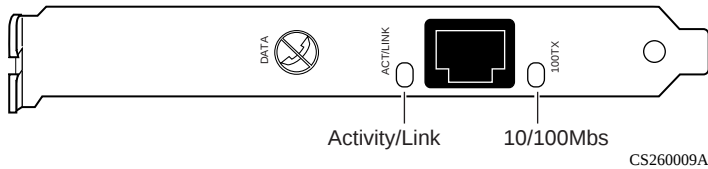


Table 9 10/100BASE-TX LAN LED card indicators

LED	Indicator	Description
ACT/LINK, Green	On or Flashing	The card is sending or receiving network data. The frequency of the flashes increases with increased traffic.
	Off	The card is not sending or receiving data.
10/100 TX, Green	On	Operating at 100 Mb/s.
	Off	Operating at 10 Mb/s.

Chapter 3

Changing Hardware Configurations

The expansion slot is renamed to Slot 2 by the Contivity software.



Warning: Wear an antistatic band when handling electronic components for the Contivity to avoid damaging them.



Note: Unplug the Contivity 600 before installing LAN or WAN interface cards.

To install LAN or WAN cards you must remove four screws on the bottom of the Contivity and slide the inner chassis out of the casing. You will need to unscrew the PCI interface bracket screw and remove the PCI interface card or blank PCI bracket. Then you will install a new PCI interface, being careful to completely press the card into the PCI connector on the mother board. Next you will replace the chassis (along the guide rails) in the outer casing and replace the bottom screws. This procedure is detailed in the steps that follow.

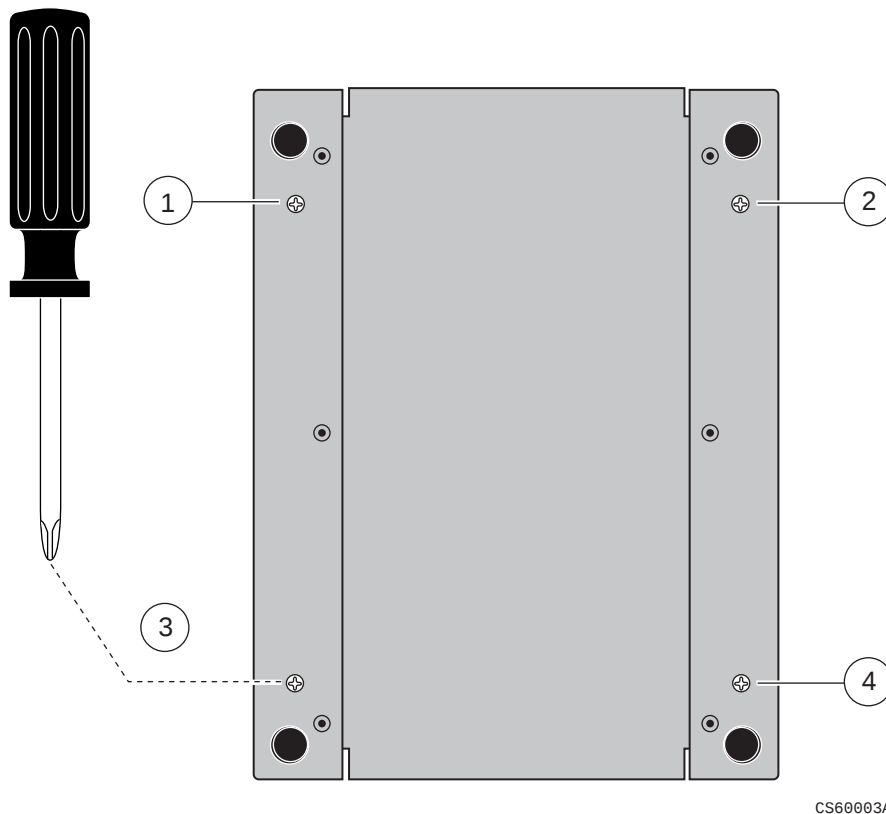
Removing the rear of the chassis to access the system

You must remove the bottom metal screws and pull the chassis from the rear to access the system. Figure 11 shows you how to remove the bottom screws from the Contivity.

To remove the bottom chassis, you need a Phillips screwdriver.

- 1 Unplug the Contivity's power cord.
- 2 Tip the Contivity up on end or turn it over to see the bottom of the box.
- 3 Using the Phillips-head screwdriver, remove the four screws that secure the bottom to the chassis as shown in Figure 11.

Figure 11 Removing the bottom screws



- 4 Firmly pull the chassis towards you to loosen it from the casing. You can gently shake it so that it slips outwards and into your hand or you can pull gently on the I/O expansion bay. Figure 12 is a photograph of how to remove the system from the casing.

Figure 12 Removing the system from the casing



Figure 13 Removing the chassis from the rear of the Contivity

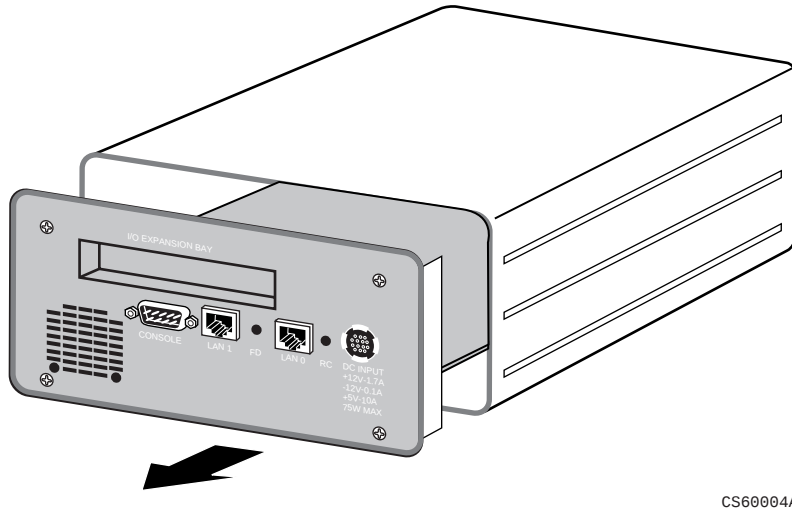


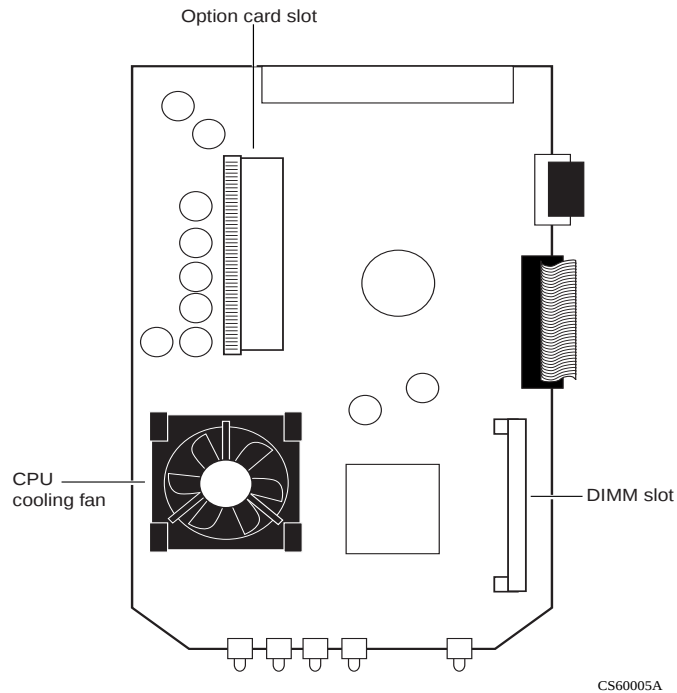
Figure 14photographic view of the Contivity 600 system board,

Figure 14 Photographic view of the Contivity 600 system board



Figure 15 shows a simplified drawing of the mother board.

Figure 15 Simplified drawing of the Contivity 600 mother board



Warning: Beware of danger if the battery is incorrectly replaced. Replace with the *same* or an *equivalent battery* only, as recommended by the manufacturer's instructions.



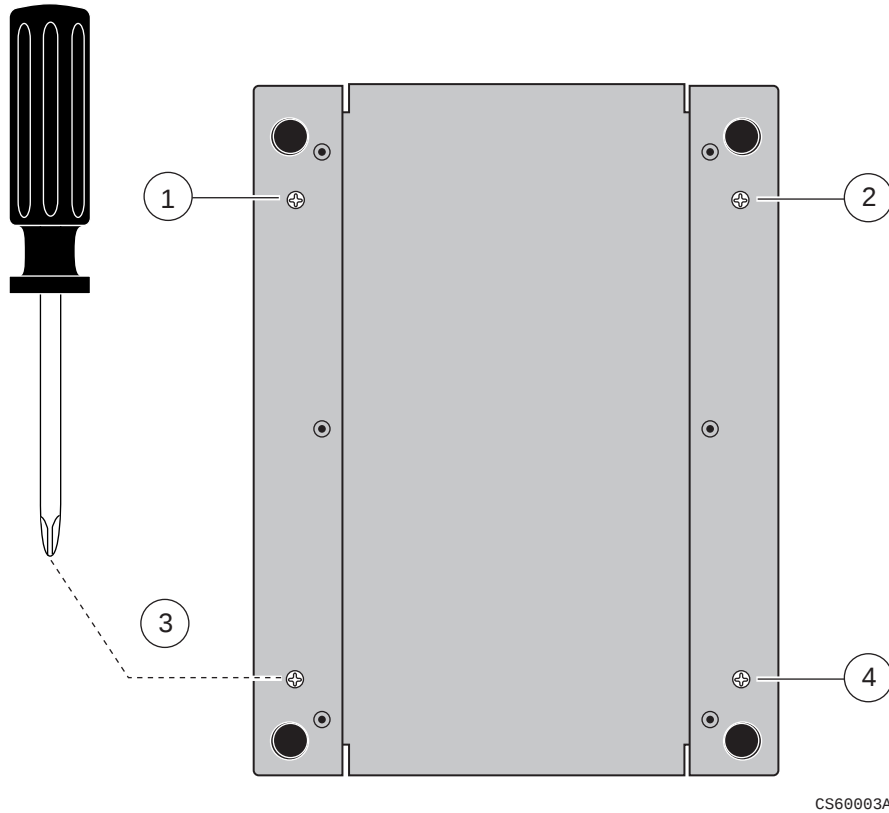
Danger: In spite of the above warning, which is mandated for regulatory approval, *you should not change the battery*. If you suspect a dead battery, contact Nortel Networks Customer Support.

This section shows you how to install LAN or WAN option cards into the Contivity.

To open the Contivity, you need a Phillips screwdriver:

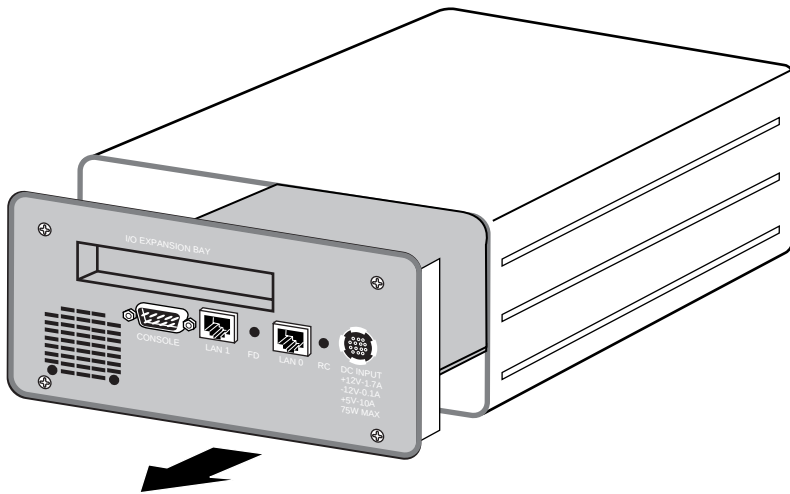
- 1 Power off the Contivity.
- 2 Remove the power cord.
- 3 Remove the bottom screws as shown in Figure 16:

Figure 16 Removing the bottom screws



- 4 Remove the system from the chassis, as shown in Figure 17.

Figure 17 Removing the chassis



CS60004A

- 5 Remove the blank PCI bracket, as shown in Figure 18 and Figure 19.

Figure 18 Removing a blank PCI bracket



- 6 Remove the blank PCI card shown in Figure 19 by inserting a Phillips head screw driver into the slot at the right of the PCI card and rotating the screw counter-clockwise.

Figure 19 Removing a blank option card



Figure 20 shows the blank option card after the screw has been removed.

Figure 20 Blank option card after screw removed



- 7 Lift out the blank option card, and slide the replacement card into the intended slot.



Note: Be careful not to bend the copper inserts.

Make sure the card seats firmly and evenly in the card slot and that the left tabbed-end of the card is seated in its slot. If the card is not seated properly, it will not work.

- 8 Replace the screw at the right end of the PCI card as shown in Figure 21.

Figure 21 Replacing screw at right end of the PCI card



- 9 Slide the unit into the casing as shown in Figure 22.

Figure 22 Replacing chassis in casing



- 10** Turn over the Contivity and replace the four Phillips head screws to secure the bottom panel.
- 11** Reconnect your power supply and restart your Contivity 600.

Chapter 4

Using Recovery Mode

The Contivity 600 recovery mode is build into the onboard flash operating system. Other than having recovery built into the unit, recovery in a 600 runs the same way as the floppy-based Contivity products do. Use the recovery mode to restore software to an existing Contivity 600 unit.

Some web pages refer to the diskette or recovery diskette. In the case of the Contivity 600, this is a virtual diskette. There is no diskette to remove; the image is built into the flash operating system.

In addition, there is no reset button on a Contivity 600 unit. Resetting the Contivity 600 is accomplished by removing power from the 600 and then restoring power.

To enter recovery mode, use the following procedure:

- 1 Plug in the console cable, the LAN0 cable, and the DC input cable from the Contivity 600 power supply.
- 2 Run hyperterm on your PC and connect to the console port of the Contivity 600.
- 3 Apply AC power to the power supply.
- 4 Depress the switch on the rear of the Contivity, accessible with a paper clip through the hole marked RC in the chassis. The RC (recovery) switch is on the rear of the unit between the DC input cable and the LAN0 cable.

On your console you will see the BIOS banner and the Nortel Networks Contivity banner. You will then observe the unit execute its power on self test. You can press the switch anytime during the power tests. A momentary press is all that is required. There is no need to hold the button down.

Note: After executing power on self test, the console displays “Booting recovery image.”

Booting the recovery image takes approximately 40 seconds. After the recovery image boots, the Contivity 600 displays the welcome message, the recovery image version, and a prompt for you to enter the administrator's user name. At this point you are in recovery mode.

- 5 Enter a management IP address, subnet mask, and gateway if they are not already assigned. You do this from the console menu after logging in as an administrator.

Once the unit has a management IP address, you can manage the unit from the web interface.

Note: The switch marked FD is reserved for future use. Depressing this switch has no effect.

At your Web browser, enter the Management IP address of your Switch. The Recovery mode display shown in Figure 23 appears, which allows you to:

- Restore the factory default configuration or the backup configuration.
- Restore a backup software image.
- Reformat the Switch's hard disk.
- Apply a new software version to the Switch.
- Perform file maintenance.
- View the Event log.
- Restart the system.

Figure 23 Recovery diskette display



Recovery Diskette

The Recovery Diskette allows you to reset or restore the files on your Switch. Use these features cautiously, as they delete or restore the major settings inside the Switch.

Diskette Software Version: V02_50 86

Diskette Software Build Date: Aug 10 1999, 11:40:05

Hard Disk Software Version: V02_50 86

System Serial Number: 44

Option	Action															
Restore	Restore Factory Configuration ☐ Restore original factory settings. This option resets the Switch's configuration file to the original values it had when shipped from the factory. The system software and internal LDAP database entries will not be altered. Important: If you choose this option, the Switch will need to be reconfigured as if it were new. Restore Backups Restore a backup image from one of the selected servers. When restoring backup files, all configuration files, internal LDAP databases, and system software will be restored from the selected backup directory. This option should only be used to restore (or install) a complete system image to the Switch, and should not be used as a method of upgrading the Switch. Note: To upgrade the Contivity Extrastar Switch, use the Admin->Upgrades feature of the management interface. <table><thead><tr><th>Host</th><th>Path</th><th>User ID</th><th>Password</th><th>Confirm Password</th></tr></thead><tbody><tr><td>☐ 10.9.8.10</td><td>Backup/vs44</td><td>Administrator</td><td></td><td></td></tr><tr><td>☐</td><td></td><td></td><td></td><td></td></tr></tbody></table>	Host	Path	User ID	Password	Confirm Password	☐ 10.9.8.10	Backup/vs44	Administrator			☐				
Host	Path	User ID	Password	Confirm Password												
☐ 10.9.8.10	Backup/vs44	Administrator														
☐																
Reformat hard disk	Format the hard disk in the Switch. Use this option cautiously. It will destroy all the information on the Switch's hard disk. Reformat															
Apply new version	Changes the version of software executing on the Switch. Use this option to change to other software versions which exist on the Switch's hard disk. To restore new versions, use the Admin->Upgrades feature of the management interface. When applying a new software version, the current version will be preserved under a unique name. Select the desired software version: (No version selected)															
Perform file maintenance	Presents a listing of directories and files on the Switch. Files															
View event log	The Event log allows you to see system events that have occurred on the Switch. This log should be used to resolve problems that occur when trying to use the various options of the Recovery diskette. View															
Restart system	To restart the system, remove the diskette and press the Reset button on the back of the Switch. Refresh															

1 Restore the configuration:

To restore the factory default configuration or the backup configuration, do one of the following:

- Restore the factory configuration by selecting Restore Factory Configuration, then clicking Restore to return the Switch to its original factory default configuration. This erases data contained in flash memory and also in the configuration file.

Warning: Selecting this option requires you to rebuild your entire Switch configuration again from scratch.

An online message specifies the result of the Factory Configuration reset action.

- Or, you can restore the Switch's previously backed-up configuration by clicking Restore. If you previously chose to automatically back up the file systems, then the Backup Server Host (or IP address) and Path Name, User ID, and Password appear in the table.

Click the radio button of the preferred backup server. The backed-up file system, including software image and configuration files, from the latest backup copy residing on the designated server will be restored onto the hard drive of your Switch.

You can use the same backup server for multiple Switches. Each Switch creates a unique directory based on its serial number. The following example shows the host, path, and serial number:

```
C:/software/backup/v101/SN01001
```

The serial number is used to differentiate backup configurations from multiple Switches that are saved on the same backup server. The serial number uniquely identifies each Switch's backup data.

A blank row in the server backup field always appears to allow you to manually enter a backup server in case you did not configure automatic backup server locations.

Alternatively, a new factory default software image and file system can be restored to the Switch's hard disk. Specify the name or address and path of the network file server onto which the software from the Nortel Networks CD has been installed.

Note: This will restore the disk to an operable but “clean” condition (for example, configuration values will be at factory defaults).

To view your Switch's serial number when the Switch is operational, click Status→System from the Navigational Menu. The serial number is also listed on the bar code label on the back of the Switch.

- 2 Click Reformat your Switch's Hard Disk if you must reformat the hard disk; for example if you:
 - Have problems restoring your configuration that are not caused by the network or the file/backup server from which the file restoration is being retrieved.
 - Want to reconfigure the Switch from scratch.

Caution: Selecting this option will completely wipe out anything that previously resided on the hard disk.

An online message indicates whether the reformatting of the hard disk was successful.

- 3 Click the drop-down list box to view the available software image and file systems that are stored on the remote disk and select the image version that you want to activate.
- 4 Click Files to bring up the File Maintenance display, which allows you to view the entire hard disk file system.

- 5 Click View to display the Event Log beneath the Recovery Diskette display. This is especially useful if a Restore operation fails.
- 6 Reset the system after recovery operation by unplugging the unit. Either AC or DC power may be interrupted momentarily to accomplish this. Then reposition your Web browser to the Management IP address, and press Reload or Refresh from your browser menu to access the management page of the software running on the hard disk.

Chapter 5

Assigning a System Identity

This section describes how to assign a Management IP address, subnet mask, and optional default gateway address to your Switch. The Management IP address is used for all system services, such as HTTP, FTP, and SNMP. The Management IP address enables you to manage the Switch from a Web browser.

Table 10 describes the choices you have when first configuring the required Switch parameters.

The IP Address Configuration Utility diskette, which comes with your Switch, searches for the serial numbers of unconfigured Switches. It then displays a table for you to enter the Management IP address, subnet mask, and default gateway (optional).

To configure the Switch from the serial interface configuration menu, you must first connect the serial interface cable to the Switch. Then you can use a terminal emulation application to enter the Management IP address, subnet mask, and default gateway (optional).

Table 10 Initial configuration options

Initial configuration method	Result	Advantages/disadvantages
IP Address Configuration Utility (recommended)	Sets Management IP address, subnet mask, and default gateway (optional)	Utility diskette makes initial configuration easy
Serial Interface Configuration Menu (optional)		Must connect the serial interface cable

Startup configuration requirements

This section describes the fields that you must complete with either the IP Address Configuration Utility or the serial interface configuration menu procedure.

Management IP address

Enter a Management IP address for the system. You need this address to manage all system services, such as HTTP, FTP, and SNMP. This address must be accessible from one of the Switch's private physical interfaces. Therefore, the Management IP address must map to the same network as one of the private interfaces.

For example, if you plan to assign IP address 10.2.3.3 with subnet mask 255.255.0.0 to the private physical interface, then the Management IP address must reside in the 10.2 network.

Carefully record the Management IP address. Later, during the Quick Start or the Guided Configuration, you will be asked to supply IP addresses for the physical interfaces.

Subnet mask

The subnet mask defines how many bits of the IP address represent the network the device is on and how many bits represent the host's ID on the network.

The device uses the subnet mask to determine which IP addresses are directly reachable on the network and which ones must be routed through a gateway. A sample IP address is 10.2.3.3 with a subnet mask of 255.255.0.0. This indicates that all hosts with addresses 10.2.*n.n*, where *n* is any number 0 - 255, are directly reachable.

Default gateway

The default gateway is where packets are routed onto the private or public network if there is not a specific route in the routing table to the desired location.

IP address configuration utility

Use this utility for the initial Switch configuration.

Requirements

To assign the Switch a Management IP address with this utility, you need:

- A PC running Windows 95, Windows 98, Windows NT, or Windows 2000 with a functioning TCP/IP stack
- The PC running on the same subnet as the Switch you are configuring
- The PC connected to an operational network connection

If your environment does not match these requirements, then you must use the serial interface configuration.

To test the function of your TCP/IP stack, send a PING command to any host.

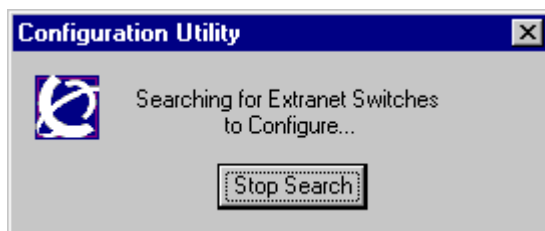
Running the IP configuration utility

The program ExtNetIP.exe is on a diskette labeled *IP Address Configuration Utility* that accompanies the Switch. You can copy the utility to your hard disk and execute it from there, or you can load it from the diskette drive. The ExtNetIP.exe program launches the IP Address Configuration Utility, which allows you to assign a Management IP address and subnet mask to the Switch. To run ExtNetIP.exe:

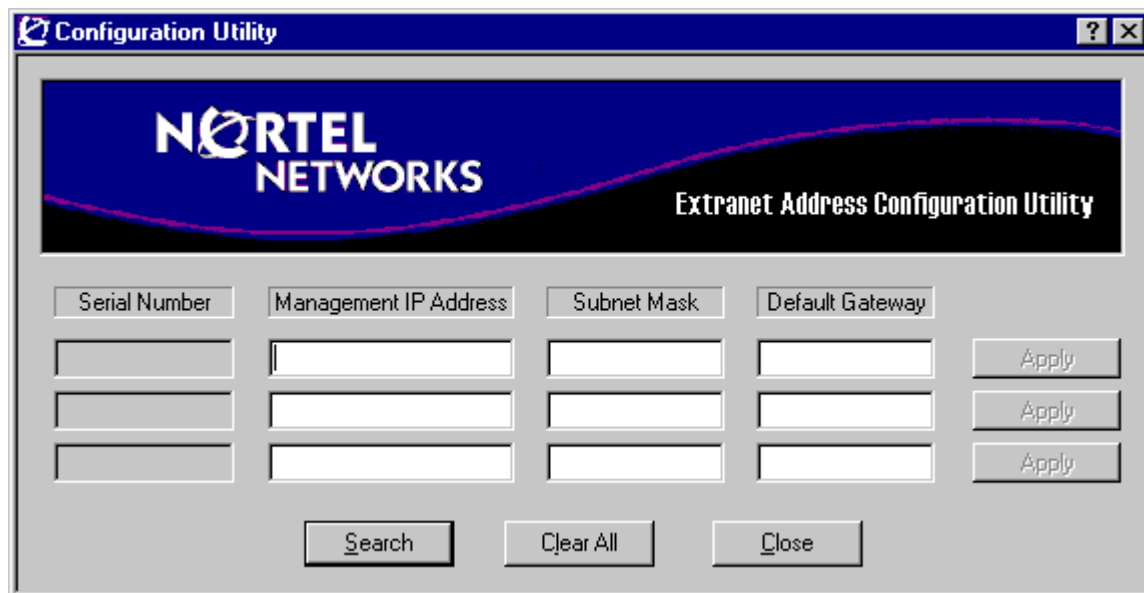
- 1 Insert the diskette into the A: drive and select Start → Run, and then type:
`a:\ExtNetIP.exe`
or open the “My Computer” icon on the desktop and open the “3½ Floppy (A:)” drive, and then double-click on the icon shown in Figure 24.

Figure 24 The ExtNepIP.exe icon

The display shown in Figure 25 appears while the program searches for an unconfigured Switch.

Figure 25 The serial number search display

The program automatically enters the Serial Number for the first available Switch into the table of Contivity Switches.

Figure 26 Extranet address configuration utility display

- 2 Assign a Management IP address and subnet mask to the Switch; the Default Gateway address is optional and can be added later (refer to “Startup Configuration Requirements” for descriptions of the required fields).
- 3 If you have more than one Switch, click Search to automatically add the additional Switch serial numbers. To verify the switches that have been discovered, you can refer to the serial number on the bar code on the bottom of the Switch.
- 4 Click Apply to configure the Management IP address, subnet mask, and default gateway on the Switch. The Extranet Address Configuration Utility display disappears.
- 5 When the Switch has completed updating its configuration with the Management IP address, subnet mask, and optional default gateway, your default Web browser will open automatically to the Contivity Extranet Switch Welcome display.
- 6 Click Close to shut down the Extranet Address Configuration Utility.



Note: Before moving the Switch from one network to another, change the Management IP address, subnet mask, and default gateway. Otherwise, you will need to follow the Serial Interface Configuration procedure to access your Switch because it will not be accessible from a Web browser with an invalid address.

Serial interface configuration

Use the IP Address Configuration Utility to configure the Switch with its initial IP address.

Alternatively, you can use the serial interface configuration menu to access the Switch via the serial interface of your PC. The serial interface configuration menu allows you to give the Switch a Management IP address, subnet mask, and gateway IP address so that you can use a Web browser for management.

Prerequisites

The terminal emulator on your PC must use the following communications parameters:

- 9600 baud
- 8 data bits
- 1 Stop bit
- No parity
- No flow control

Procedure

To configure the serial interface:

- 1 Connect the serial cable from the Switch's serial cable port to a PC communications port. Turn on the Switch. It can take the system approximately three minutes to start up.
- 2 Using a terminal emulation program, such as Hyper Terminal, press Enter and then supply a user name and password. The factory default user name and password are:

User name: **admin**

Password: **setup**

A menu appears that allows you to enter the following:

- Management IP address
- IP subnet mask
- Gateway IP address (optional)

A sample display follows:

```
Welcome to the Nortel Networks Extranet Switch
Copyright 1998 and 2000, Nortel Networks
Date: 1/29/00
Unit Serial Number: 01001
Please enter the administrator's username: admin
```

Please enter the administrator's password: **setup**

- 1) Management IP Address*
- 2) IP Subnet Mask
- 3) Gateway IP Address*
- 4) Allow HTTP Management
- 5) Interface IP Address*
- C) Controlled Crash
- R) Reset to Factory Defaults
- E) Exit

*0.0.0.0 resets to factory default value of NULL

Please select a menu choice (1 - 5, C, R, E):

- 3 Follow the screen prompts. Some of the descriptions of the fields required to complete this procedure are in the section "Startup Configuration Requirements."
- 4 After you complete the configuration, type **E** to Exit. You can then manage the Switch from a Web browser.



Note: This administrator's password is also the primary administrator's password. This password guarantees access to the Switch via the serial port or a Web browser.

Appendix A

Specifications

Table 11 shows the physical specifications and operating environment for the Contivity 600.

Table 11 Physical specifications and operating environment

Specification	Description
Physical	
Depth	10.75 in. (27.30 cm)
Width	8 in. (20.32 cm)
Height	4 in. (10.16 cm)
Weight	7 lbs. (3.175Kg)
Electrical	
Voltage	100 - 240 VAC
Current	1.9 A
Frequency	47/63 HZ
Operating environment	
Temperature	32 - 110° F (0 - 45° C)
Relative Humidity	10 - 90% noncondensing

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